Louisiana Department of Environmental Quality (LDEQ)
Office of Environmental Services

STATEMENT OF BASIS

Chalmette Refining, L.L.C.
Cat Feed Hydrotreater-Pretreater No. 1-Reformer No. 1-Gasoline Hydrotreater
Fluidized Catalytic Cracking Unit
Alkylation Unit;No. 1 Crude/Coker Units
Chalmette, St. Bernard Parish, Louisiana
Agency Interest Number: 1376
Activity Number: PER19960007, 19960008, 19960013
Draft Permits 3011-V0, 3022-V0, 3018-V0

I. *APPLICANT:*

Company:
Chalmette Refining, L.L.C.
Post Office Box 1007
Chalmette, Louisiana 70044

Facility:
Chalmette Refining, L.L.C – Chalmette Refinery
Cat Feed Hydrotreater-Pretreater No. 1-Reformer No. 1-Gasoline Hydrotreater
Fluidized Catalytic Cracking Unit and Alkylation Unit
No. 1 Crude/Coker Units
500 W. St. Bernard Highway, Chalmette, St. Bernard Parish, Louisiana
Approximate UTM coordinates are 792.12 kilometers East and 3341.95 kilometers North, Zone 15

Responsible Official:
Mr. J.A. Stroink, Refinery Manager

II. *FACILITY AND CURRENT PERMIT STATUS*

Chalmette Refinery, L.L.C. (CRLLC) operates an oil refinery in Chalmette, Louisiana, in St. Bernard Parish. St. Bernard Parish is currently designated as attainment for all regulated air pollutants. The Utilities Plant are a major source subject to the Part 70 operating permit program because it is part of a stationary source that has the potential to emit over the major source emissions levels for criteria pollutants. In addition, this stationary source has the potential to emit 25 or more tons per year of aggregate TAPs.

The Chalmette Refinery is bordered by the Mississippi River to the south, Calciner Industries, Inc. and old Kaiser Aluminum Company to the west, St. Bernard Highway with light commercial and residential areas to the north and Palmisano Street with light commercial and residential areas to the east. Chalmette Refinery is a joint venture between ExxonMobil Corporation and Petroleos de Venezuela (PDV), the Venezuelan national oil company. The refinery is an integrated crude operation (high conversion) which includes crude distillation, catalytic reforming, fluid catalytic cracking (FCC), hydrocracking, HF alkylation, delayed coking, and aromatics processing units. The refinery's product capabilities include gasoline, diesel, benzene/toluene/xylene (BTX) production, distillates, and sulfur recovery as well as by-products such as petroleum coke and LPG.

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The Cat Feed Hydrotreater-Pretreater No. 1-Reformer No. 1-Gasoline Hydrotreater are used to purify the feed by removing impurities like nitrogen and sulfur; reform naphthenic and paraffinic chains and rings into aramatics; and convert sulfur compounds in the feed into hydrogen sulfide and remove it from the feed and saturate diolephins to olefins.

Permitted emissions from the Cat Feed Hydrotreater-Pretreater No. 1-Reformer No. 1-Gasoline Hydrotreater in tons per year are as follows:

Pollutant	Emissions
PM_{10}	18.03
SO_2	40.21
NO_X	440.97
CO	81.34
VOC	228.29

The Fluidized Catalytic Cracking Unit & Alkylation Unit are used to upgrade the feed by cracking or breaking heavy hydrocarbon molecules into lighter and desirable hydrocarbon molecules suitable for use in motor gasoline or diesel blending and combine low molecular weight olefins with isobutene to produce gasoline components (alkylates) of higher octane rating. Chalmette Refining, L.L.C. proposes to modify these units by installing an oxygen enrichment process to increase unit conversion and efficiency.

The project actual emissions increase is estimated in tons per year as follows:

Pollutant	Project Emissions Increase	PSD Significance Levels	Netting Analysis Required
PM_{10}	6.98	15.00	No
SO_2	18.36	40.00	No
NO_X	36.62	40.00	No
CO	90.37	100.00	No
VOC	8.89	40.00	No
H_2SO_4	3.74	7.00	No

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Permitted emissions from the Fluidized Catalytic Cracking Unit and the Alkylation Unit in tons per year are as follows:

Pollutant	Emissions
PM_{10}	83.41
SO_2	66.84
NO_X	467.65
CO	309.09
VOC	170.56

The No. 1 Crude/Coker Units are used to produce finished products like straight run gasoline, kerosene, coke, asphalt and other by-products that require further processing or treatment.

Permitted emissions from the No. 1 Crude/Coker Units in tons per year are as follows:

Pollutant	Emissions
PM_{10}	18.94
SO_2	39.61
NO_X	334.99
CO	164.46
VOC	293.39

The process units that exist at the Chalmette Refinery site include Oil Movements and Loading; Utilities Plant; Waste Water Treatment Plant; No. 1 Crude / Coker; No. 2 Crude / Coker; Cat Feed Hydrotreater / Pretreater No. 1 / Reformer No. 1/ Gasoline Hydrotreater Unit; Sulfur Recovery Unit / HDS / AMU / SWS / WGS / BRU; Flare No.1 & Flare No. 2; Hydrocracker Unit / Pretreater No. 3 / Reformer No. 3 / LEP; Fluidized Catalytic Cracking Unit / Alkylation; and Aromatics.

Timely applications for initial Part 70 Title V permits were submitted by the company, therefore, the facility continues to operate pursuant to 40 CFR 70.7 provided in the Part 70 Title V Program.

The Part 70 operating permits are for the Cat Feed Hydrotreater-Pretreater No. 1-Reformer No. 1-Gasoline Hydrotreater; Fluidized Catalytic Cracking Unit & Alkylation Unit and No. 1 Crude/Coker Units which operate under Permit Numbers 2500-00005-02, 2073, 2226 (M-3), 2620, 2621 and 2801-V0.

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Several state permits remain in effect for this facility until replaced by a Part 70 Permit, these include:

Permit #	Units or Sources	Date Issued
2500-00005-02	Multiple Units	11/18/1988
2226(M-3)	Multiple Units	11/27/1996
2822	WWTP (New Project)	01/29/2003

Initial/Modification Title V Part 70 permits that were issued by the department include:

Permit #	Units or Sources	Date Issued
2801-V0	GHU	09/15/2002
2500-00005-V0	Utilities Plant	11/07/2005

Initial/Renewal/Modification Title V Part 70 permits that are under review by the department include:

Permit #	Units or Sources	Date Issued
2822-V0	Wastewater Treatment Plant	Under Review
3004-V0	Oil Movements & Loading	Under Review
3015-V0	HCU	Under Review
3016-V0	Flare No. 1 & 2	Under Review
3019-V0	Aromatics	Under Review

III. *PROPOSED PERMIT / PROJECT INFORMATION*

Proposed Permits

Initial applications and Emission Inventory Questionnaires (EIQ), were submitted by Chalmette Refining, L.L.C on October 14, 1996 for all the above units and these applications and EIQs were later updated and revised. Additional information was also received for the above referenced applications and EIQs.

Project description

The facility proposes to modify the Fluidized Catalytic Cracking Unit by installing an oxygen enrichment process to increase unit conversion and efficiency. The project will be completed in two phases. The objective is to enrich the air sent to the regenerator with oxygen to improve combustion, increase unit conversion and thereby raise the unit capacity by approximately 5,000 barrels per day.

Phase 1: This will include the initial portion which consists of items that can be safely completed without a shutdown of units and outside of a turnaround. The modifications

for Phase 1 are a) installation of piping from the existing oxygen header to the FCCU main air line and b) installation of associated controls and shutdown systems.

Phase 2: This will include items which will be completed during shutdown of units or during a turnaround and will encompass three minor projects: Reactor Stripper Internal Modifications, Slurry Pump Replacement (two new pumps with one being a spare), and Hot/Cold Feed Exchanger Installation. The modifications will include a) installation of closed coupled cyclones in the Reactor to improve unit conversion, b) replacement of Reactor head, cyclones, and plenum due to age deterioration, c) replacement of Regenerator head, cyclones and plenum due to age deterioration, d) replacement of Main Fractionator trays 1 through 12 to improve tower performance, e) installation of a vapor distributor in the Main Fractionator to improve tower performance, f) increasing orifice size of the spent catalyst slide valve in order to increase catalyst circulation, and g) performing other safety valve modifications/additions (thermal relief, set pressure changes, increasing size, etc.). This project is expected to be completed by the end of 2008.

The modification to the FCCU will not affect any upstream emissions as the FCCU already operates at maximum capacity by utilizing purchased feedstock. The downstream Alkylation Unit and Gasoline Hydrotreater Unit (GHU) will receive more feed due to the FCCU modification. The Alkylation unit compensates purchased feedstock to run at maximum capacity if needed. This will reduce the purchased feedstock as needed. The GHU will experience some increase in feedstock and the heat duty will increase by approximately 3 MM BTU/hr. Since the GHU is not being modified the increase is considered as an incremental increase in emissions.

IV. *REGULATORY ANALYSIS*

The applicability of the appropriate regulations is straightforward and is provided in the Facility Specific Requirements Section of the proposed permits. Similarly, the Monitoring, Reporting and Recordkeeping necessary to demonstrate compliance with the applicable terms conditions and standards are provided in the Facility Specific Requirements Section of the proposed permits.

National Emission Standards for Hazardous Air Pollutants: NESHAP From Benzene Waste Operations (BWON)

Chemical manufacturing plants, coke by-product plant and petroleum refineries are potentially subject to the provisions of BWON. Oil water separators, individual drain systems, stream stripping units, and other equipment that meet the definition of a waste

management unit are subject to BWON. A waste management unit is defined as a piece of equipment used in the handling, storage, treatment, or disposal of waste. A waste is any material resulting from industrial operations that is discarded or accumulated, stored, or treated prior to discarded, recycled, or discharged. BWON specifically lists the following waste streams to which this regulation do not apply: 1) Waste in the form of gases or vapors that is emitted from process fluids; 2) Waste that is contained in a segregated storm water sewer system; and 3) Any gaseous stream from a waste management unit, treatment process, or wastewater treatment system routed to a fuel gas system.

The facility generates a total annual benzene (TAB) quantity of 10 megagrams per year or greater. The facility elects to take the 6 megagrams per year option as per the requirements of 40 CFR 63.342(e) where the total uncontrolled benzene quantity for the wastes shall not be greater than 6 megagrams per year.

National Emission Standards for Hazardous Air Pollutants: NESHAP From Synthetic Organic Chemical Manufacturing Industry

A chemical manufacturing process unit (CMPU) that manufactured one or more SOCMI chemicals listed in Table 1 of 40 CFR 63, Subpart F and that uses as a reactant or manufactures as a product, or co-product, one or more of the organic hazardous air pollutants listed in Table 2 of 40 CFR 63, Subpart F is potentially subject to the SOCMI HON. Some of the Chemical Manufacturing Process Units (CMPUs), located elsewhere in the refinery, may generate maintenance wastewater and Group 2 process wastewater and route it to the WWTP. Therefore, the WWTP is subject to Subpart F Maintenance Wastewater requirements and Subpart G Group 2 Process Wastewater requirements.

National Emission Standards for Hazardous Air Pollutants: NESHAP From Petroleum Refineries

A petroleum refining process unit that contains or contacts one or more of the HAPs listed in Table 1 of Subpart CC is potentially subject to RMACT.

There are fugitive components within the CFHT-PT1-RF1-GHU units in organic HAP service. Therefore, the units are subject to the equipment leak provisions of this rule and CRLLC demonstrates compliance by complying with the provisions of 40 CFR 63.648(c), the modified HON option.

A process wastewater stream in a refining process unit that contains one or more of the HAPs listed in Table 1 of Subpart CC are potentially subject to RMACT. Wastewater components within the process units are associated with petroleum refining process units. Therefore, the wastewater provisions of the RMACT are applicable. Group 2 streams are not subject to any control, monitoring, recordkeeping, or reporting requirements under RMACT. Group 1 wastewater streams must demonstrate compliance with RMACT by

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complying with NESHAP Part 61 Subpart FF, BWON.

The CFHT-PT1-RF1-GHU units contain tanks that receive maintenance wastewater and wastewater streams that are subject to the wastewater provisions of RMACT. When determining whether a tank must comply with the storage vessel provisions or the wastewater provisions of the RMACT, the function of the tank (whether the tank stores a waste or a product for use or reuse) is used as the basis of the determination. As defined in RMACT Subpart CC, a wastewater tank is not a storage vessel. Notably, the CFHT-PT1-RF1-GHU units contain Group 2 wastewater tanks. Group 2 wastewater tanks are not subject to any control, monitoring, recordkeeping, or reporting requirements under RMACT.

The No. 1 Crude Unit contains tanks that receive maintenance wastewater and wastewater streams that are subject to the wastewater provisions of RMACT. When determining whether a tank must comply with the storage vessel provisions or the wastewater provisions of the RMACT, the function of the tank (whether the tank stores a waste or a product for use or reuse) is used as the basis of the determination. As defined in RMACT Subpart CC, a wastewater tank is not a storage vessel. Notably, the No. 1 Coker Unit contains Group 2 wastewater tanks. Group 2 wastewater tanks are not subject to any control, monitoring, recordkeeping, or reporting requirements under RMACT.

National Emission Standards for Hazardous Air Pollutants: NESHAP From Synthetic Organic Chemical Manufacturing Industry

The petroleum refining process unit that contains or contacts one or more of the HAPs listed in Table 1 of Subpart CC is potentially subject to RMACT. Leaks from equipment in organic HAP service that are located in a petroleum refining process unit are subject to RMACT. Equipment in organic HAP service in the WWTP Area is subject to the RMACT. CRLLC demonstrates compliance with this rule by complying with the provisions of 40 CFR 63.648. A process wastewater stream in a petroleum refining process unit that contains one or more of the HAPs listed in Table 1 of Subpart CC are potentially subject to RMACT. The WWTP receives process wastewater streams and, therefore, the wastewater provisions of the RMACT are applicable to the WWTP Area.

Notably, the benzene concentration of the wastewater streams generated in the WWTP Areas is less than 10 ppmw. Therefore, the wastewater stream can be classified as a Group 2 stream. There are no controls, monitoring, recordkeeping, or reporting requirements for Group 2 wastewater streams. However, the Vacuum Trucks within the WWTP may load and transport process wastewater streams from refinery units that can

be classified as Group 1 streams. Per 40 CFR 63.647(a), Group 1 wastewater streams must demonstrate compliance with RMACT by complying with NESHAP Part 61 Subpart FF, BWON.

The WWTP area contains tanks that receive maintenance wastewater and wastewater streams that are subject to the wastewater provisions of RMACT. When determining whether a tank must comply with the storage vessel provisions or the wastewater provisions of the RMACT, the function of the tank (whether the tank stores a waste or a product for use or reuse) is used as the basis of the determination. As defined in RMACT Subpart CC, a wastewater tank is not a storage vessel. Notable, the WWTP area contains *Group 2 wastewater tanks. Group 2 wastewater tanks are not subject to any requirements* under RMACT.

The equipment leak provisions of Subpart CC apply to all equipment that operates in organic HAP service. Equipment includes all pumps, compressors, pressure relief devices, sampling connections, open-ended valves or lines, valves, flanges and other connectors, product accumulator vessels, and control devices, or systems required by Subpart CC. However, there are no fugitive components within the WWTP Area in organic HAP service. Therefore, the WWTP Area is not subject to the equipment leak provisions of this rule.

Prevention of Significant Deterioration Applicability

These applications are a comprehensive updates to the initial Part 70 Air Permit Applications and does propose minor modification to the Fluidized Catalytic Cracking Unit; therefore NSR/PSD review is not required.

Air Modeling Analysis

No modeling was conducted as a part of this comprehensive update to the initial Part 70 Air Permit Applications.

Comprehensive Toxic Air Pollutant Control Program-Chapter 51

Toxic air pollutant emissions from fugitives must be controlled to a degree that constitutes MACT. The units comply with all applicable provisions of the Louisiana Air Toxics Program.

Maximum Achievable Control Technology (MACT) requirements

The Louisiana Air Toxics Program (LA MACT) requires a major source emitting any Class I or II pollutant at a rate that exceeds the minimum emission rate for that pollutant to demonstrate compliance with the Maximum Achievable Control Technology (MACT) standards. Additionally, the Louisiana Air Toxics Program requires a major source

emitting any Class I, II, or III toxic air pollutant greater than the minimum emission rate for that pollutant to determine its status of compliance with the applicable ambient air standard (AAS) defined for the pollutant.

The requirements of the LA MACT apply to the storage tanks and to the units as a whole. Chalmette Refining demonstrates compliance with the LA MACT requirements by complying with the most stringent applicable federal or state air toxics regulations.

General Condition XVII Activities

The facility will comply with the applicable General Condition XVII Activities emissions as required by the operating permit rule. However, General Condition XVII Activities are not subject to testing, monitoring, reporting or recordkeeping requirements. For a list of approved General Condition XVII Activities, refer to Section VIII of the proposed Part 70 permits.

Insignificant Activities

All Insignificant Activities are authorized under LAC 33:III.501.B.5. For a list of approved Insignificant Activities, refer to Section IX of the proposed Part 70 permits.

V. *PERMIT SHIELDS*

A permit shield was not requested.

VI. *PERIODIC MONITORING*

The Monitoring, Reporting and Recordkeeping necessary to demonstrate compliance with the applicable terms, conditions and standards are provided in the Facility Specific Requirements Section of the proposed permits.

VII. *APPLICABILITY AND EXEMPTIONS OF SELECTED SUBJECT ITEMS*

See Proposed Permits.

VIII. *STREAMLINED REQUIREMENTS*

These proposed permits do not include any streamlined requirements.

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IX. *GLOSSARY*

Carbon Monoxide (CO) – A colorless, odorless gas which is an oxide of carbon.

Maximum Achievable Control Technology (MACT) - The maximum degree of reduction in emissions of each air pollutant subject to LAC 33:III.Chapter 51 (including a prohibition on such emissions, where achievable) that the administrative authority, upon review of submitted MACT compliance plans and other relevant information and taking into consideration the cost of achieving such emission reduction, as well as any non-air-quality health and environmental impacts and energy requirements, determines is achievable through application of measures, processes, methods, systems, or techniques.

New Source Review (NSR) - A preconstruction review and permitting program applicable to new or modified major stationary sources of air pollutants regulated under the Clean Air Act (CAA). NSR is required by Parts C ("Prevention of Significant Deterioration of Air Quality") and D ("Nonattainment New Source Review").

Nitrogen Oxides (NO_x) - Compounds whose molecules consists of nitrogen and oxygen.

Organic Compound - Any compound of carbon and another element. Examples: Methane (CH_4), Ethane (C_2H_6), Carbon Disulfide (CS_2)

Part 70 Operating Permit- Also referred to as a Title V permit, required for major sources as defined in 40 CFR 70 and LAC 33:III.507. Major sources include, but are not limited to, sources which have the potential to emit: $\geq$ 10 tons per year of any toxic air pollutant; $\geq$ 25 tons of total toxic air pollutants; and $\geq$ 100 tons per year of regulated pollutants (unless regulated solely under 112(r) of the Clean Air Act) (25 tons per year for sources in non-attainment parishes).

PM_{10}- Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by the method in Title 40, Code of Federal Regulations, Part 50, Appendix J.

Potential to Emit (PTE) - The maximum capacity of a stationary source to emit any air pollutant under its physical and operational design.

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Prevention of Significant Deterioration (PSD) – A New Source Review permitting program for major sources in geographic areas that meet the National Ambient Air Quality Standards (NAAQS) at 40 CFR Part 50. PSD requirements are designed to ensure that the air quality in attainment areas will not degrade.

RMACT – Refinery Maximum Achievable Control Technology

Sulfur Dioxide (SO_2) – An oxide of sulfur.

Title V permit – See Part 70 Operating Permit.

Volatile Organic Compound (VOC) - Any organic compound which participates in atmospheric photochemical reactions; that is, any organic compound other than those which the administrator of the U.S. Environmental Protection Agency designates as having negligible photochemical reactivity.